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ENERGY AND SUSTAINABLE DEVELOPMENT

DEVELOPMENT OF STRATEGIES FOR FUTURE ENERGY SYSTEMS
COMPATIBLE WITH SUSTAINABLE DEVELOPMENT

POLICIES FOR THE IMPLEMENTATION OF ENERGY SYSTEMS
COMPATIBLE WITH SUSTAINABLE DEVELOPMENT

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Energy for sustainable development

The Committee on New and Renewable Sources of Energy and on Energy for Development recommends to the Economic and Social Council adoption of the following draft resolution:

The Economic and Social Council,

Recalling the main objectives expressed in the International Development Strategy for the Fourth United Nations Development Decade, 1/ Agenda 21, 2/ the United Nations Framework Convention on Climate Change, 3/ and the 1979 Convention on Long-range Transboundary Air Pollution, particularly the linkages between energy and the objectives agreed in those documents in the following four domains: development and socio-economic growth, environment, stability of market conditions conducive to economic growth, and natural resources,

Noting that development and socio-economic growth and population growth will require more energy services, which must be met in a sustainable way,

Noting further that in local, national, regional and global environmental issues, energy production, transformation, transportation, and utilization, account for a large fraction of the problem,

Noting that stable energy markets and reliable energy systems are vital for economic and social security and for the development of each member State,

Noting also the need to extend the lifetime of exhaustible resources to future generations and to restrict the use of resources to levels that can be sustained,

Stressing that energy issues, therefore, with respect to the four domains quoted above are of paramount importance in the quest for sustainable development in developing and industrialized countries,

Considering that present worldwide trends in the demand and supply of energy are not sustainable since they are not compatible with the objectives in the four domains identified above and that a new path of energy-system development must be identified and implemented,

Considering that the objective of the energy system is to supply energy services (for instance, illumination, cooked food, comfortable indoor climate, transportation, and refrigerated storage or, when the service is a product, a kilogram of steel) and that energy is a means to such ends, not an objective in itself, leading to the observation that the energy system encompasses the energy supply sector and all energy-using installations and devices,

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1/ General Assembly resolution 45/199.

2/ Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992 (United Nations publication, Sales No. A/CONF.151/26), vol. I, chap. I, annex II.

3/ See A/AC.237/18, part II, Add.1 and Corr.1, annex.

Observing further that, for developing a new energy path, the following exist:

(a) More efficient use of energy and energy-intensive materials;

(b) Increased use of renewable sources of energy;

(c) More rational use of fossil fuels;

(d) Fuel substitution, from high-carbon to low-carbon or no-carbon fuels. Each of these options, of course, must be used in an efficient, environmentally sound, safe, economically viable, and socially acceptable manner. For each of these options, the crucial importance of capacity-building is noted. Together, the options, within the limitations indicated, provide a large potential for change,

1. Invites each member State to take appropriate steps to meet the objectives in the four domains noted above, by stimulating the use of the options listed above, and

(a) To adopt and implement an integrated national action programme for the development of and transition to an energy system compatible with the objectives in the four domains cited above;

(b) To establish targets for contributions of the different options to their supply of energy services, commensurate with the time-frames of feasibility. Such targets should be derived from the objectives above;

(c) To give appropriate institutions the mandate, responsibility, and means to promote national action programmes through, inter alia, education, training and information programmes, energy-environment planning and policy coordination, the development and application of incentives, and research, development, and demonstration;

(d) To remove permanent subsidies for conventional sources of energy. Temporary subsidies and other financial incentives, however, can be justified as a means to introduce new technologies in the market-place;

(e) To take steps to ensure that the costs and benefits (environmental, social etc.) are included in the market price;

(f) To substantially increase the level and the share of public funding of research, development and demonstration in the areas of efficient use of energy and renewable sources of energy;

(g) To support the demonstration of new technologies in the areas listed above;

(h) To support the creation of early markets, and market build-up, especially for technologies in the areas listed above;

(i) To restructure energy-sector expenditures so that first priority is given to energy technologies compatible with sustainable development;

(j) To allocate a rapidly increasing share of all aid funds from bilateral, multilateral and international agencies devoted to the energy sector in the coming years to technologies in the areas listed above, especially focused on more efficient use of energy and materials and renewable sources of energy. The same should apply to grants and loans from international development banks;

(k) To report to the United Nations on their national programmes of action for the options listed above, in order to facilitate an international dialogue;

2. Recommends specifically with respect to the first option, more efficient use of energy and energy-intensive materials:

(a) The use of regulatory measures - inter alia, technical performance standards - with respect to use of energy in the buildings sector, for vehicles, appliances, and other energy-using equipment;

(b) The creation of an incentive structure for utilities to apply integrated resource planning and demand side management;

(c) The creation of voluntary commitments and cooperation among industries to implement more energy-efficient technologies, systems and practices;

(d) That Governments use their convening ability to bring buyers of energy-using equipment together to express market demand for more energy-efficient equipment;

(e) The use of design competitions as an instrument to bring more energy-efficient technologies to the market-place;

(f) The creation of financial third-party financing mechanisms;

(g) The creation of a market-place for the competition between energy efficiency improvements and energy supply investments;

(h) That steps be taken to make use of secondary energy sources - for instance, waste heat from industrial processes;

(i) The stimulation of closing energy-intensive materials cycles - inter alia, recycling of materials and reuse of products;

(j) The stimulation of "cleaner technologies" that minimize the use of natural resources and waste generation;

(k) The build-up of an infrastructure for the collection of paper, metals etc.;

(l) The use of economic incentives, such as deposits to increase collection of recyclable materials in automobiles, packaging materials, office

machinery, etc., the use of levies on the production of waste, and taxes on the use of natural resources;

3. Recommends specifically with respect to the second option, increased use of renewable sources of energy:

(a) That, in the post-United Nations Conference on Environment and Development era, when a clear distinction must be made between fossil fuels and renewable energy, the term "renewable sources of energy" be used in the United Nations system to refer to large and small-scale hydropower, biomass energy, solar energy, wind energy, ocean energy, urban and rural organic waste, and geothermal energy, instead of the term "new and renewable sources of energy", which was defined in the Nairobi Programme of Action to include tar sands, oil shale and peat;

(b) That detailed measurements and evaluations of hydro, wind, solar, and geothermal energy resources, as well as evaluations of organic waste and land resource evaluations for biomass plantations, be carried out in all countries;

(c) The acceleration of the development and diffusion of modular renewable energy technologies through research, development, and market expansion;

(d) The creation of regional centres of excellence for renewable energy technologies, to provide training, technology support, and resource data appropriate to regional needs;

(e) That steps be taken to ensure that the share of public energy investments devoted to promoting research, development, demonstrations and training related to renewable energy sources is commensurate with their potential to meet national energy needs and global responsibilities;

(f) That steps be taken to promote the implementation of bilateral, multilateral and regional cooperation, such as joint ventures, between industrialized and developing countries;

(g) That steps be taken to collect, review and publicize success stories involving renewable energy, to give realistic examples of what has been done and what is possible;

4. Recommends specifically with respect to the third option, improved use of fossil fuels:

(a) The introduction and improvement of cleaner coal technologies, including technologies to use waste products;

(b) The investigation and (if viable) the demonstration of options for the decarbonization of fossil fuels and flue gases, especially CO^2 sequestering and deposition, in the power and process industries;

(c) The improvement of the efficiency in fossil fuel conversion and use;

5. Recommends specifically with respect to the fourth option, fuel substitution, from high-carbon to low-carbon or no-carbon fuels:

(a) The creation of a reliable infrastructure and expanded exploration for the expanded use of natural gas;

(b) The development and strengthening of an institutional framework for international cooperation in major energy markets, within the framework for and objectives of sustainable development;

(c) Stimulation of the production of methanol and hydrogen for use in the transportation sector;

(d) Stimulation of substitutes for fuelwood;

(e) That, for a revival of the nuclear option, the need for development of inherently safe nuclear reactors (reactors that cannot melt or explode), proliferation-proof nuclear fuel cycles, and safe nuclear waste handling and deposition, including the transmutation of long-lived isotopes, be recognized;

6. Requests the Secretary-General to adopt all the necessary ways and means to promote the development of a world energy system compatible with sustainable development, including the following initiatives:

(a) Promote and support policy planning, inter alia, by organizing dialogues between member States and upon the request of a member State, based on national action programmes and national reports;

(b) Promote rapid and effective transfer of environmentally sound technologies, especially energy-efficient technologies and technologies for the utilization of renewable sources of energy among countries, on favourable and concessional terms to developing countries. Action should be taken to adapt currently available technologies to local conditions, to promote the build-up of the endogenous expertise and infrastructure needed to enable the implementation of renewable energy programmes, and to promote local production of technologies in order to enhance national self-reliance;

(c) Prepare and disseminate studies on new technological developments, techniques and strategies for identifying, locating and evaluating new and renewable energy sources;

(d) Increase capacity-building efforts, particularly in developing countries, to ensure increased development and implementation of renewable energy programmes;

(e) Coordinate international activities aimed at promoting the utilization of renewable energy sources;

(f) Promote research, development, and demonstration programmes in developing countries, especially for technologies that utilize energy more efficiently, and the use of renewable energy sources;

(g) Coordinate the exchange of information and experience on research, development and applications of renewable energy technologies;

(h) Gather statistics from individual countries on renewable energy sources and perform evaluations of their applications;

(i) Implement the proposal by the Colloquium of High-level Experts on New and Renewable Sources of Energy (the Castel Gandolfo Group) to establish a global network of international research centres of excellence in the field of renewable energy sources;

7. Recommends that the Secretary-General study how the need for a strong international institution to carry out the tasks identified above can be addressed or how appropriate institutional arrangements can be made;

8. Requests the Secretary-General to prepare an annual, comprehensive report on worldwide progress in implementation of the present resolution.